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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/685,407

Applicant(s)

YOOK, HYUNGYOO

Examiner

Qing Chen

Art Unit

2191

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 01 July 2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-30 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-30 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SF/ICE)
- 4) ☐ Interview Summary (PTO-413)
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____
- Paper No(s)/Mail Date _____

DETAILED ACTION

1. This Office action is in response to the amendment filed on July 1, 2008.
2. **Claims 1-30** are pending.
3. **Claims 1, 9, 17, 21, 24, and 29** have been amended.

Response to Amendment

Specification

4. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.
5. The disclosure is objected to because of the following informalities: “[A]n HAVi home network” should read -- a HAVi home network -- on page 2, paragraph [05].

Appropriate correction is required.

Claim Rejections - 35 USC § 102

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

7. **Claims 1, 2, 4, 9, 10, 17, 18, 20, 24-26, and 28** are rejected under 35 U.S.C. 102(b) as being anticipated by **US 2002/0073244 (hereinafter “Davies”)**.

As per **Claim 1**, Davies discloses:

- a plurality of controlled devices (*see Paragraph [0021], "The system includes a HAVi network with a plurality of devices connected to the HAVi network via a IEEE 1394 bus. A number of internet protocol devices are communicating and operating with the HAVi network via an IP protocol."*); and
- an application server performing the installation and management of applications for the plurality of controlled devices by using a framework capable of providing integrated support to a variety of home network middleware (*see Paragraph [0028], "The HAVi network 200 includes an IP and HAVi compliant device, i.e., an FAV, acting as a controller 210. The controller 210 runs a server 212 and includes HAVi software and APIs 214."; Paragraph [0035], "The HAVi stack 426 includes a device manager. As the FAV finds new devices coupled to the HAVi network 400, the device manager creates a device control module for each new device. These device control modules (DCMs) 424 are instantiated for all the devices on the HAVi network 400. The DCMs 424 allow the HAVi network 400 to interface with each HAVi compliant device and IP device DCMs 422 allow the HAVi network 400 to interface with each IP device."*),
- wherein the application server controls the plurality of controlled devices in response to the installed applications (*see Paragraph [0024], "The primary distinguishing feature of an FAV node is that it is able to take control responsibility for less sophisticated devices and does this by loading a control module, usually from the less sophisticated device, and executing it locally."; Paragraph [0025], "In the embodiment shown in FIG. 1, FAV node 110 acts as a*

controller for the HAVi network 100 and connected devices.”; Paragraph [0030], “The IP DCM is a logical representation of the IP device 230 that provides an API used to send control commands to the IP device 230 by the server 212 on the controller 210.”).

As per **Claim 2**, the rejection of **Claim 1** is incorporated; and Davies further discloses:

- wherein the home network middleware is selected from a group consisting of HAVi and HWW (see Paragraph [0021], “The system includes a HAVi network with a plurality of devices connected to the HAVi network via a IEEE 1394 bus. A number of internet protocol devices are communicating and operating with the HAVi network via an IP protocol.”).

As per **Claim 4**, the rejection of **Claim 1** is incorporated; and Davies further discloses:

- wherein each of the controlled devices includes a home network middleware module for communicating with the application server (see Paragraph [0030], “The IP device 230 has IP and HAVi APIs 232 that provide API support to translate and relay calls between the server 212 and the IP device 230. The HAVi compliant devices 220 communicate with the server 210 by using HAVi APIs 222 and communicating via a communication medium such as the IEEE 1394 network.”).

As per **Claim 9**, Davies discloses:

- a framework capable of providing integrated support to a variety of home network middleware is loaded on the application server (see Paragraph [0035], “The HAVi stack 426 includes a device manager. As the FAV finds new devices coupled to the HAVi network 400, the

device manager creates a device control module for each new device. These device control modules (DCMs) 424 are instantiated for all the devices on the HAVi network 400. The DCMs 424 allow the HAVi network 400 to interface with each HAVi compliant device and IP device DCMs 422 allow the HAVi network 400 to interface with each IP device.”); and

- one of the plurality of controlled devices controls the application server and performs installation and management of applications for the plurality of controlled devices (see Paragraph [0028], “In FIG. 2, a block diagram of one embodiment of an IP device 230 integrated into a HAVi network 200 is shown. The HAVi network 200 includes an IP and HAVi compliant device, i.e., an FAV, acting as a controller 210. The controller 210 runs a server 212 and includes HAVi software and APIs 214.”; Paragraph [0029], “In an alternative embodiment, an IP device may control the FAV or IAV device as well as other HAVi compliant devices coupled to a HAVi network.”; Paragraph [0035], “The HAVi stack 426 includes a device manager. As the FAV finds new devices coupled to the HAVi network 400, the device manager creates a device control module for each new device. These device control modules (DCMs) 424 are instantiated for all the devices on the HAVi network 400. The DCMs 424 allow the HAVi network 400 to interface with each HAVi compliant device and IP device DCMs 422 allow the HAVi network 400 to interface with each IP device.”),

- wherein the one of the plurality of controlled devices controls the plurality of controlled devices in response to the installed applications (see Paragraph [0029], “In an alternative embodiment, an IP device may control the FAV or IAV device as well as other HAVi compliant devices coupled to a HAVi network.”; Paragraph [0030], “The IP DCM is a logical

representation of the IP device 230 that provides an API used to send control commands to the IP device 230 by the server 212 on the controller 210.”).

As per **Claim 10**, the rejection of **Claim 9** is incorporated; and Davies further discloses:

- wherein the home network middleware is selected from a group consisting of HAVi and HWW (*see Paragraph [0021], “The system includes a HAVi network with a plurality of devices connected to the HAVi network via a IEEE 1394 bus. A number of internet protocol devices are communicating and operating with the HAVi network via an IP protocol.”).*

As per **Claim 17**, Davies discloses:

- (1) detecting connection of the plurality of controlled devices with a home network by an application server loaded with a framework capable of providing integrated support to a variety of home network middleware (*see Paragraph [0025], “In the embodiment shown in FIG. 1, FAV node 110 acts as a controller for the HAVi network 100 and connected devices. Connected to the HAVi network 100 are several devices including a video camera 120, a television 130, a VCR 140, and a CD player 150. These devices are connected via a bus 124. Generally, the bus 124 used to connect devices to the HAVi network 100 is the IEEE 1394 bus standard. An IP device 160 is also integrated into the HAVi network 100 via an IP protocol 164.”); and*
- (2) installing the applications and controlling the plurality of controlled devices in response to the installed applications by the application server (*see Paragraph [0024], “The primary distinguishing feature of an FAV node is that it is able to take control responsibility for*

less sophisticated devices and does this by loading a control module, usually from the less sophisticated device, and executing it locally.”; Paragraph [0025], “In the embodiment shown in FIG. 1, FAV node 110 acts as a controller for the HAVi network 100 and connected devices.”; Paragraph [0030], “The IP DCM is a logical representation of the IP device 230 that provides an API used to send control commands to the IP device 230 by the server 212 on the controller 210.”; Paragraph [0035], “The HAVi stack 426 includes a device manager. As the FAV finds new devices coupled to the HAVi network 400, the device manager creates a device control module for each new device. These device control modules (DCMs) 424 are instantiated for all the devices on the HAVi network 400. The DCMs 424 allow the HAVi network 400 to interface with each HAVi compliant device and IP device DCMs 422 allow the HAVi network 400 to interface with each IP device.”).

As per **Claim 18**, the rejection of **Claim 17** is incorporated; and Davies further discloses:

- wherein the home network middleware is selected from a group consisting of HAVi and HWW (see Paragraph [0021], “The system includes a HAVi network with a plurality of devices connected to the HAVi network via a IEEE 1394 bus. A number of internet protocol devices are communicating and operating with the HAVi network via an IP protocol.”).

As per **Claim 20**, the rejection of **Claim 17** is incorporated; and Davies further discloses:

- wherein the framework provides Internet access services and home network middleware services (see Paragraph [0028], “In one embodiment, the proxies 234 and APIs 232 are downloaded onto the IP device 230 from the Internet.”; Paragraph [0030], “The IP device

230 has IP and HAVi APIs 232 that provide API support to translate and relay calls between the server 212 and the IP device 230. The HAVi compliant devices 220 communicate with the server 210 by using HAVi APIs 222 and communicating via a communication medium such as the IEEE 1394 network.”).

As per **Claim 24**, Davies discloses:

- (1) searching for the application server with an application platform service module, by one of the plurality of controlled devices (*see Paragraph [0025], “In the embodiment shown in FIG. 1, FAV node 110 acts as a controller for the HAVi network 100 and connected devices.”; Paragraph [0028], “The HAVi network 200 includes an IP and HAVi compliant device, i.e., an FAV, acting as a controller 210. The controller 210 runs a server 212 and includes HAVi software and APIs 214.”*); and

- (2) controlling the application server to install the applications for the plurality of controlled devices and controlling the plurality of controlled devices in response to the installed applications, by the one of the plurality of controlled devices (*see Paragraph [0024], “The primary distinguishing feature of an FAV node is that it is able to take control responsibility for less sophisticated devices and does this by loading a control module, usually from the less sophisticated device, and executing it locally.”; Paragraph [0025], “In the embodiment shown in FIG. 1, FAV node 110 acts as a controller for the HAVi network 100 and connected devices.”; Paragraph [0029], “In an alternative embodiment, an IP device may control the FAV or LAV device as well as other HAVi compliant devices coupled to a HAVi network.”; Paragraph [0030], “The IP DCM is a logical representation of the IP device 230 that provides an API used*

to send control commands to the IP device 230 by the server 212 on the controller 210.”;
Paragraph [0035], “The HAVi stack 426 includes a device manager. As the FAV finds new devices coupled to the HAVi network 400, the device manager creates a device control module for each new device. These device control modules (DCMs) 424 are instantiated for all the devices on the HAVi network 400. The DCMs 424 allow the HAVi network 400 to interface with each HAVi compliant device and IP device DCMs 422 allow the HAVi network 400 to interface with each IP device.”).

As per **Claim 25**, the rejection of **Claim 24** is incorporated; and Davies further discloses:

- wherein the application server is loaded with a framework capable of providing integrated support to a variety of home network middleware (*see Paragraph [0021], “The system includes a HAVi network with a plurality of devices connected to the HAVi network via a IEEE 1394 bus. A number of internet protocol devices are communicating and operating with the HAVi network via an IP protocol.”).*

As per **Claim 26**, the rejection of **Claim 25** is incorporated; and Davies further discloses:

- wherein the home network middleware is selected from a group consisting of HAVi and HWW (*see Paragraph [0021], “The system includes a HAVi network with a plurality of devices connected to the HAVi network via a IEEE 1394 bus. A number of internet protocol devices are communicating and operating with the HAVi network via an IP protocol.”).*

As per **Claim 28**, the rejection of **Claim 25** is incorporated; and Davies further discloses:

- wherein the framework provides controlled device access services and home network middleware services (*see Paragraph [0021], "The system includes a HAVi network with a plurality of devices connected to the HAVi network via a IEEE 1394 bus. A number of internet protocol devices are communicating and operating with the HAVi network via an IP protocol."*).

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. **Claims 3, 11, 19, and 27** are rejected under 35 U.S.C. 103(a) as being unpatentable over **Davies** in view of US 7,058,719 (hereinafter "**Motoyama**").

As per **Claim 3**, the rejection of **Claim 1** is incorporated; however, Davies does not disclose:

- wherein the framework is an OSGi framework.

Motoyama discloses:

- wherein the framework is an OSGi framework (*see Column 1: 31-37, "With such a large number of sophisticated electronic devices in our home and workplace, there has been recognized a need to manage such equipment. For example, the Open Services Gateway*

Initiative (OSGI) is an industry initiative to provide the technology to allow management of localized electronics equipment by use of an external service provider.”).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the teaching of Motoyama into the teaching of Davies to include wherein the framework is an OSGi framework. The modification would be obvious because one of ordinary skill in the art would be motivated to allow management of localized electronics equipment by use of an external service provider (see Motoyama – Column 1: 31-37).

As per **Claim 11**, the rejection of **Claim 9** is incorporated; however, Davies does not disclose:

- wherein the framework is an OSGi framework.

Motoyama discloses:

- wherein the framework is an OSGi framework (see Column 1: 31-37, “With such a large number of sophisticated electronic devices in our home and workplace, there has been recognized a need to manage such equipment. For example, the Open Services Gateway Initiative (OSGI) is an industry initiative to provide the technology to allow management of localized electronics equipment by use of an external service provider.”).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the teaching of Motoyama into the teaching of Davies to include wherein the framework is an OSGi framework. The modification would be obvious because one of ordinary skill in the art would be motivated to allow management of localized electronics equipment by use of an external service provider (see Motoyama – Column 1: 31-37).

As per **Claim 19**, the rejection of **Claim 17** is incorporated; however, Davies does not disclose:

- wherein the framework is an OSGi framework.

Motoyama discloses:

- wherein the framework is an OSGi framework (*see Column 1: 31-37, "With such a large number of sophisticated electronic devices in our home and workplace, there has been recognized a need to manage such equipment. For example, the Open Services Gateway Initiative (OSGI) is an industry initiative to provide the technology to allow management of localized electronics equipment by use of an external service provider."*).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the teaching of Motoyama into the teaching of Davies to include wherein the framework is an OSGi framework. The modification would be obvious because one of ordinary skill in the art would be motivated to allow management of localized electronics equipment by use of an external service provider (*see Motoyama – Column 1: 31-37*).

As per **Claim 27**, the rejection of **Claim 25** is incorporated; however, Davies does not disclose:

- wherein the framework is an OSGi framework.

Motoyama discloses:

- wherein the framework is an OSGi framework (*see Column 1: 31-37, "With such a large number of sophisticated electronic devices in our home and workplace, there has been*

recognized a need to manage such equipment. For example, the Open Services Gateway Initiative (OSGI) is an industry initiative to provide the technology to allow management of localized electronics equipment by use of an external service provider.”).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the teaching of Motoyama into the teaching of Davies to include wherein the framework is an OSGi framework. The modification would be obvious because one of ordinary skill in the art would be motivated to allow management of localized electronics equipment by use of an external service provider (*see Motoyama – Column 1: 31-37*).

10. **Claims 5-8, 12-16, 21, 22, and 29** are rejected under 35 U.S.C. 103(a) as being unpatentable over **Davies** in view of **WO 02/09350 (hereinafter “Moonen”)**.

As per **Claim 5**, the rejection of **Claim 1** is incorporated; however, Davies does not disclose:

- wherein each of the controlled devices includes positional information on an application file to be installed, and the application file is stored in a file server on the Internet.

Moonen discloses:

- wherein each of the controlled devices includes positional information on an application file to be installed, and the application file is stored in a file server on the Internet (*see Figure 1: 124; Figure 3: 306; Page 2: 30-33, “... the inventors propose a solution wherein a bridge is connected to a server, e.g., on the Internet. This server can offers a lookup service for some set of standards, and allows a bridge to locate and download the appropriate translation*

modules for use in the home network.”; Page 9: 26 and 27, “In a step 228 downloaded CD proxy 226 is run on the execution environment of bridge 118. This involves installing an http server for the unique URL of CD proxy 226.”; Page 10: 5 and 6, “In a step 306, the device description document of printer 206 is retrieved from the URL embodied in the announcement message ...”).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the teaching of Moonen into the teaching of Davies to include wherein each of the controlled devices includes positional information on an application file to be installed, and the application file is stored in a file server on the Internet. The modification would be obvious because one of ordinary skill in the art would be motivated to download applications files from a central server.

As per **Claim 6**, the rejection of **Claim 5** is incorporated; however, Davies does not disclose:

- wherein the application server extracts the positional information on the application file from the plurality of controlled devices and downloads the application file from the file server to install a relevant application in response to the extracted positional information.

Moonen discloses:

- wherein the application server extracts the positional information on the application file from the plurality of controlled devices and downloads the application file from the file server to install a relevant application in response to the extracted positional information (*see Page 5: 34 to Page 6: 1-4, “Similarly, Installation Manager 122 receives or retrieves*

information descriptive of newly added B-device 116. The descriptive information is possibly reformatted before being sent to a bridge server 124 via the Internet 126. In addition, bridge 118 preferably provides information about the local execution environment of home network 100. This information is relevant to the software components that server 124 download onto bridge 118.”; Page 7: 4-6, “Next, assume that a matching translation module 128 has been found it is downloaded to the bridge, installed on platform 120 and registered in accordance with the protocol of standard A.”).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the teaching of Moonen into the teaching of Davies to include wherein the application server extracts the positional information on the application file from the plurality of controlled devices and downloads the application file from the file server to install a relevant application in response to the extracted positional information. The modification would be obvious because one of ordinary skill in the art would be motivated to download applications files from a central server.

As per **Claim 7**, the rejection of **Claim 5** is incorporated; and Davies further discloses:

- wherein the application server includes a home network middleware module for communicating with the plurality of controlled devices (*see Paragraph [0028], “The controller 210 runs a server 212 and includes HAVi software and APIs 214.”*).

However, Davies does not disclose:

- wherein the application server includes a home network middleware module for extracting the positional information on the application file from the plurality of controlled

devices, an application loader module for downloading the application file from the file server in accordance with the extracted positional information on the application file, and an application management module for controlling operations of the home network middleware module and the application loader module.

Moonen discloses:

- wherein the application server includes a home network middleware module for extracting the positional information on the application file from the plurality of controlled devices, an application loader module for downloading the application file from the file server in accordance with the extracted positional information on the application file, and an application management module for controlling operations of the home network middleware module and the application loader module (*see Figure 1: 120, 122, and 128; Page 5: 26-28, "Bridge 118 comprises a software component 122, referred to as Installation Manager, that handles the installation of further software components needed to integrate B-device 116 into system 100."*; *Page 7: 4-8, "Next, assume that a matching translation module 128 has been found it is downloaded to the bridge, installed on platform 120 and registered in accordance with the protocol of standard A. This enables other applications and devices of A-cluster 102 to discover and use device 116 through module 128. The installation and registering of module 128 may be postponed until after it has been run on the execution environment of bridge 118."*).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the teaching of Moonen into the teaching of Davies to include wherein the application server includes a home network middleware module for extracting the positional information on the application file from the plurality of controlled devices, an

application loader module for downloading the application file from the file server in accordance with the extracted positional information on the application file, and an application management module for controlling operations of the home network middleware module and the application loader module. The modification would be obvious because one of ordinary skill in the art would be motivated to download applications files from a central server.

As per **Claim 8**, the rejection of **Claim 7** is incorporated; however, Davies does not disclose:

- wherein the home network middleware module and the application loader module are bundled into the framework.

Moonen discloses:

- wherein the home network middleware module and the application loader module are bundled into the framework (*see Figure 1: 118, 120, and 122; Page 5: 24-28, "... bridge 118 detects B-device 116 as a new addition, either because bridge 118 scans B-cluster 110 or its registry/directory/look-up service (not shown) periodically or because B-cluster 110 actively notifies bridge 118. Bridge 118 comprises a software component 122, referred to as Installation Manager, that handles the installation of further software components needed to integrate B-device 116 into system 100."* and 34 to Page 6: 1-4, "Similarly, Installation Manager 122 receives or retrieves information descriptive of newly added B-device 116. The descriptive information is possibly reformatted before being sent to a bridge server 124 via the Internet 126. In addition, bridge 118 preferably provides information about the local execution environment of home network 100. This information is relevant to the software components that server 124

downloads onto bridge 118.”; Page 7: 4-8, “Next, assume that a matching translation module 128 has been found it is downloaded to the bridge, installed on platform 120 and registered in accordance with the protocol of standard A. This enables other applications and devices of A-cluster 102 to discover and use device 116 through module 128. The installation and registering of module 128 may be postponed until after it has been run on the execution environment of bridge 118.”).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the teaching of Moonen into the teaching of Davies to include wherein the home network middleware module and the application loader module are bundled into the framework. The modification would be obvious because one of ordinary skill in the art would be motivated to download applications files from a central server.

As per **Claim 12**, the rejection of **Claim 9** is incorporated; however, Davies does not disclose:

- wherein an application file is stored in a file server on the Internet.

Moonen discloses:

- wherein an application file is stored in a file server on the Internet (*see Page 2: 30-33, “... the inventors propose a solution wherein a bridge is connected to a server, e.g., on the Internet. This server offers a lookup service for some set of standards, and allows a bridge to locate and download the appropriate translation modules for use in the home network.”).*

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the teaching of Moonen into the teaching of Davies to include

wherein an application file is stored in a file server on the Internet. The modification would be obvious because one of ordinary skill in the art would be motivated to download applications files from a central server.

As per **Claim 13**, the rejection of **Claim 12** is incorporated; and Davies further discloses:

- wherein the application server includes a home network middleware module for communicating with the plurality of controlled devices (*see Paragraph [0028], "The controller 210 runs a server 212 and includes HAVi software and APIs 214."*).

However, Davies does not disclose:

- an application loader module for downloading the application files from the file server under the control of the one of the plurality of controlled devices, and an application platform service module for controlling operations of the home network middleware module and the application loader module under the control of the one of the plurality of controlled devices.

Moonen discloses:

- an application loader module for downloading the application files from the file server under the control of the one of the plurality of controlled devices, and an application platform service module for controlling operations of the home network middleware module and the application loader module under the control of the one of the plurality of controlled devices (*see Figure 1: 128; Page 7: 4-8, "Next, assume that a matching translation module 128 has been found it is downloaded to the bridge, installed on platform 120 and registered in accordance with the protocol of standard A. This enables other applications and devices of A-cluster 102 to discover and use device 116 through module 128. The installation and registering of module 128*

may be postponed until after it has been run on the execution environment of bridge 118.”), an application loader module for downloading the application files from the file server under the control of the one of the plurality of controlled devices (see Figure 1: 122; Page 5: 26-28, “Bridge 118 comprises a software component 122, referred to as Installation Manager, that handles the installation of further software components needed to integrate B-device 116 into system 100.”), and an application platform service module for controlling operations of the home network middleware module and the application loader module under the control of the one of the plurality of controlled devices (see Figure 1: 120; Page 7: 4-6, “Next, assume that a matching translation module 128 has been found it is downloaded to the bridge, installed on platform 120 and registered in accordance with the protocol of standard A.”).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the teaching of Moonen into the teaching of Davies to include an application loader module for downloading the application files from the file server under the control of the one of the plurality of controlled devices, and an application platform service module for controlling operations of the home network middleware module and the application loader module under the control of the one of the plurality of controlled devices. The modification would be obvious because one of ordinary skill in the art would be motivated to download applications files from a central server.

As per **Claim 14**, the rejection of **Claim 13** is incorporated; however, Davies does not disclose:

- wherein the home network middleware module and the application loader module of the application server are bundled into the framework.

Moonen discloses:

- wherein the home network middleware module and the application loader module of the application server are bundled into the framework (see Figure 1: 118, 120, and 122; Page 5: 24-28, "... bridge 118 detects B-device 116 as a new addition, either because bridge 118 scans B-cluster 110 or its registry/directory/look-up service (not shown) periodically or because B-cluster 110 actively notifies bridge 118. Bridge 118 comprises a software component 122, referred to as Installation Manager, that handles the installation of further software components needed to integrate B-device 116 into system 100." and 34 to Page 6: 1-4, "Similarly, Installation Manager 122 receives or retrieves information descriptive of newly added B-device 116. The descriptive information is possibly reformatted before being sent to a bridge server 124 via the Internet 126. In addition, bridge 118 preferably provides information about the local execution environment of home network 100. This information is relevant to the software components that server 124 downloads onto bridge 118."; Page 7: 4-8, "Next, assume that a matching translation module 128 has been found it is downloaded to the bridge, installed on platform 120 and registered in accordance with the protocol of standard A. This enables other applications and devices of A-cluster 102 to discover and use device 116 through module 128. The installation and registering of module 128 may be postponed until after it has been run on the execution environment of bridge 118.").

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the teaching of Moonen into the teaching of Davies to include

wherein the home network middleware module and the application loader module of the application server are bundled into the framework. The modification would be obvious because one of ordinary skill in the art would be motivated to download applications files from a central server.

As per **Claim 15**, the rejection of **Claim 9** is incorporated; and Davies further discloses:

- wherein each of the plurality of controlled devices includes a home network middleware module for communicating with the application server (*see Paragraph [0030], "The IP device 230 has IP and HAVi APIs 232 that provide API support to translate and relay calls between the server 212 and the IP device 230. The HAVi compliant devices 220 communicate with the server 210 by using HAVi APIs 222 and communicating via a communication medium such as the IEEE 1394 network."*).

However, Davies does not disclose:

- an application management module for installing a new application or managing an already installed application by controlling the application server.

Moonen discloses:

- an application management module for installing a new application or managing an already installed application by controlling the application server (*see Figure 1: 120, 122, and 128; Page 5: 26-28, "Bridge 118 comprises a software component 122, referred to as Installation Manager, that handles the installation of further software components needed to integrate B-device 116 into system 100."*; Page 7: 4-8, "Next, assume that a matching translation module 128 has been found it is downloaded to the bridge, installed on platform 120

and registered in accordance with the protocol of standard A. This enables other applications and devices of A-cluster 102 to discover and use device 116 through module 128. The installation and registering of module 128 may be postponed until after it has been run on the execution environment of bridge 118.”).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the teaching of Moonen into the teaching of Davies to include an application management module for installing a new application or managing an already installed application by controlling the application server. The modification would be obvious because one of ordinary skill in the art would be motivated to download applications files from a central server.

As per **Claim 16**, the rejection of **Claim 15** is incorporated; however, Davies does not disclose:

- wherein the application management module determines a location where a new application file is downloaded and then requests the application server to install the new application.

Moonen discloses:

- wherein the application management module determines a location where a new application file is downloaded and then requests the application server to install the new application (*see Page 7: 4-8, “Next, assume that a matching translation module 128 has been found it is downloaded to the bridge, installed on platform 120 and registered in accordance with the protocol of standard A. This enables other applications and devices of A-cluster 102 to*

discover and use device 116 through module 128. The installation and registering of module 128 may be postponed until after it has been run on the execution environment of bridge 118.”).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the teaching of Moonen into the teaching of Davies to include wherein the application management module determines a location where a new application file is downloaded and then requests the application server to install the new application. The modification would be obvious because one of ordinary skill in the art would be motivated to download applications files from a central server.

As per **Claim 21**, the rejection of **Claim 17** is incorporated; however, Davies does not disclose:

- extracting positional information on an application file necessary for controlling the plurality of controlled devices, by the application server;
- downloading the application file from the file server in accordance with the extracted positional information by the application server; and
- executing the downloaded application file and installing a relevant application by the application server.

Moonen discloses:

- extracting positional information on an application file necessary for controlling the plurality of controlled devices, by the application server (*see Page 5: 34 to Page 6: 1-4, “Similarly, Installation Manager 122 receives or retrieves information descriptive of newly added B-device 116. The descriptive information is possibly reformatted before being sent to a*

bridge server 124 via the Internet 126. In addition, bridge 118 preferably provides information about the local execution environment of home network 100. This information is relevant to the software components that server 124 downloads onto bridge 118.”; Page 7: 4-6, “Next, assume that a matching translation module 128 has been found it is downloaded to the bridge, installed on platform 120 and registered in accordance with the protocol of standard A.”);

- downloading the application file from the file server in accordance with the extracted positional information by the application server (see Page 5: 34 to Page 6: 1-4, “Similarly, Installation Manager 122 receives or retrieves information descriptive of newly added B-device 116. The descriptive information is possibly reformatted before being sent to a bridge server 124 via the Internet 126. In addition, bridge 118 preferably provides information about the local execution environment of home network 100. This information is relevant to the software components that server 124 downloads onto bridge 118.”; Page 7: 4-6, “Next, assume that a matching translation module 128 has been found it is downloaded to the bridge, installed on platform 120 and registered in accordance with the protocol of standard A.”); and

- executing the downloaded application file and installing a relevant application by the application server (see Page 7: 4-8, “Next, assume that a matching translation module 128 has been found it is downloaded to the bridge, installed on platform 120 and registered in accordance with the protocol of standard A. This enables other applications and devices of A-cluster 102 to discover and use device 116 through module 128. The installation and registering of module 128 may be postponed until after it has been run on the execution environment of bridge 118.”).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the teaching of Moonen into the teaching of Davies to include extracting positional information on an application file necessary for controlling the plurality of controlled devices, by the application server; downloading the application file from the file server in accordance with the extracted positional information by the application server; and executing the downloaded application file and installing a relevant application by the application server. The modification would be obvious because one of ordinary skill in the art would be motivated to download applications files from a central server.

As per **Claim 22**, the rejection of **Claim 21** is incorporated; however, Davies does not disclose:

- wherein each of the plurality of controlled devices includes the positional information on the application file, and the application file is stored in a file server on the Internet.

Moonen discloses:

- wherein each of the plurality of controlled devices includes the positional information on the application file, and the application file is stored in a file server on the Internet (*see Figure 1: 124; Figure 3: 306; Page 2: 30-33, "... the inventors propose a solution wherein a bridge is connected to a server, e.g., on the Internet. This server can offers a lookup service for some set of standards, and allows a bridge to locate and download the appropriate translation modules for use in the home network."*; Page 9: 26 and 27, *"In a step 228 downloaded CD proxy 226 is run on the execution environment of bridge 118. This involves installing an http server for the*

unique URL of CD proxy 226.”; Page 10: 5 and 6, “In a step 306, the device description document of printer 206 is retrieved from the URL embodied in the announcement message ...”).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the teaching of Moonen into the teaching of Davies to include wherein each of the plurality of controlled devices includes the positional information on the application file, and the application file is stored in a file server on the Internet. The modification would be obvious because one of ordinary skill in the art would be motivated to download applications files from a central server.

As per **Claim 29**, the rejection of **Claim 24** is incorporated; however, Davies does not disclose:

- determining whether it is necessary to install a new application, by a controlled device;
- if it is necessary to install the new application, requesting the application server to install the new application, by a controlled device;
- downloading a relevant application file from a file server according to the request for installing the new application; and
- controlling the application server to install the new application, by a controlled device.

Moonen discloses:

- determining whether it is necessary to install a new application, by a controlled device (see Page 5: 34 through Page 6: 1, “Similarly, Installation Manager 122 receives or retrieves information descriptive of newly added B-device 116.”);

- if it is necessary to install the new application, requesting the application server to install the new application, by a controlled device (see Page 6: 8-10, “Based on this information server 124 is able to select the proper translation module or modules that fits or fit in best with the network environment of system 100.”);

- downloading a relevant application file from a file server according to the request for installing the new application (see Page 5: 34 through Page 6: 1-4, “Similarly, Installation Manager 122 receives or retrieves information descriptive of newly added B-device 116. The descriptive information is possibly reformatted before being sent to a bridge server 124 via the Internet 126. In addition, bridge 118 preferably provides information about the local execution environment of home network 100. This information is relevant to the software components that server 124 download onto bridge 118.”; Page 7: 4-6, “Next, assume that a matching translation module 128 has been found it is downloaded to the bridge, installed on platform 120 and registered in accordance with the protocol of standard A.”); and

- controlling the application server to install the new application, by a controlled device (see Page 7: 4-8, “Next, assume that a matching translation module 128 has been found it is downloaded to the bridge, installed on platform 120 and registered in accordance with the protocol of standard A. This enables other applications and devices of A-cluster 102 to discover and use device 116 through module 128. The installation and registering of module 128 may be postponed until after it has been run on the execution environment of bridge 118.”).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the teaching of Moonen into the teaching of Davies to include determining whether it is necessary to install a new application, by a controlled device; if it is necessary to install the new application, requesting the application server to install the new application, by a controlled device; downloading a relevant application file from a file server according to the request for installing the new application; and controlling the application server to install the new application, by a controlled device. The modification would be obvious because one of ordinary skill in the art would be motivated to download applications files from a central server.

11. **Claims 23 and 30** are rejected under 35 U.S.C. 103(a) as being unpatentable over **Davies** in view of “**UNIX Programmer’s Manual**,” November 1971 (hereinafter “**UNIX1971**”) and **Moonen**.

As per **Claim 23**, the rejection of **Claim 17** is incorporated; and Davies further discloses:

- an application management step of executing the application installed in the application server (see Paragraph [0035], “*The HAVi stack 426 includes a device manager. As the FAV finds new devices coupled to the HAVi network 400, the device manager creates a device control module for each new device. These device control modules (DCMs) 424 are instantiated for all the devices on the HAVi network 400. The DCMs 424 allow the HAVi network 400 to interface with each HAVi compliant device and IP device DCMs 422 allow the HAVi network 400 to interface with each IP device.*”).

However, Davies does not disclose:

- an application management step of stopping, deleting, and updating the application installed in the application server.

UNIX1971 discloses:

- an application management step of stopping and deleting the application installed in the application server (*see commands: exit and rm*).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the teaching of UNIX1971 into the teaching of Davies to include an application management step of stopping and deleting the application installed in the application server. The modification would be obvious because one of ordinary skill in the art would be motivated to provide full application support for proper maintenance and maximum extensibility.

Moonen discloses:

- an application management step of updating the application installed in the application server (*see Page 4: 16-18, "When the new translation modules become available on the server, bridges that have sent requests for translation modules in the past with which the server could not comply, can now be notified of an upgrade."*).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the teaching of Moonen into the teaching of Davies to include an application management step of updating the application installed in the application server. The modification would be obvious because one of ordinary skill in the art would be motivated to provide full application support for proper maintenance and maximum extensibility.

As per **Claim 30**, the rejection of **Claim 24** is incorporated; and Davies further discloses:

- an application management step of executing the application installed in the application server (*see Paragraph [0035], "The HAVi stack 426 includes a device manager. As the FAV finds new devices coupled to the HAVi network 400, the device manager creates a device control module for each new device. These device control modules (DCMs) 424 are instantiated for all the devices on the HAVi network 400. The DCMs 424 allow the HAVi network 400 to interface with each HAVi compliant device and IP device DCMs 422 allow the HAVi network 400 to interface with each IP device."*).

However, Davies does not disclose:

- an application management step of stopping, deleting, and updating the application installed in the application server.

UNIX1971 discloses:

- an application management step of stopping and deleting the application installed in the application server (*see commands: exit and rm*).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the teaching of UNIX1971 into the teaching of Davies to include an application management step of stopping and deleting the application installed in the application server. The modification would be obvious because one of ordinary skill in the art would be motivated to provide full application support for proper maintenance and maximum extensibility.

Moonen discloses:

- an application management step of updating the application installed in the application server (see Page 4: 16-18, "When the new translation modules become available on the server, bridges that have sent requests for translation modules in the past with which the server could not comply, can now be notified of an upgrade.").

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the teaching of Moonen into the teaching of Davies to include an application management step of updating the application installed in the application server. The modification would be obvious because one of ordinary skill in the art would be motivated to provide full application support for proper maintenance and maximum extensibility.

Response to Arguments

12. Applicant's arguments filed on July 1, 2008 have been fully considered, but they are not persuasive.

In the Remarks, Applicant argues:

a) In the rejection, the Examiner contends Davies discloses the recited "application server performing the installation and management of applications for the plurality of controlled devices," as recited in claim 1. As support in Davies, the Examiner cites to paragraph [0028].

This paragraph provides:

The HAVi network 200 includes an IP and HAVi compliant device, i.e., an FAV, acting as a controller 210. The controller 210 runs a server 212 and includes HAVi software and APIs 214.

Additionally, the Examiner relies on paragraph [0035], which provides:

The HAVi stack 426 includes a device manager. As the FAV finds new devices coupled to the HAVi network 400, the device manager creates a device control module for each new device. These device control modules (DCMs) 424 are instantiated for all the devices on the HAVi network 400. The DCMs 424 allow the HAVi network 400 to interface with each IP device.

Notably, these portions of Davies relate to an FAV acting as a controller 210 and the creation of device control modules (DCMs) which allow the HAVi network 400 to interface with each IP device. However, nowhere do these portions, nor does any other portion of Davies, disclose: (1) an application server which performs the installation of an application; and (2) where the application server controls the plurality of controlled devices in response to the installed applications.

Rather, the DCMs merely enable the server 420 or FAV to communicate with a corresponding one of the devices in the HAVi network. In this way, the server 420 merely uses these interfaces to communication with each device. To the extent these module and interfaces exist in the network, the server 420 does not control the plurality of controlled devices in response to these applications. Rather, the server 420 merely uses these interfaces to communicate commands.

Examiner's response:

a) Examiner disagrees. Applicant's arguments are not persuasive for at least the following reasons:

First, with respect to the Applicant's assertion that Davies does not disclose an application server which performs the installation of an application, as previously pointed out in the Non-Final Rejection (mailed on 04/01/2008) and further clarified hereinafter, the Examiner

respectfully submits that Davies clearly discloses an application server which performs the installation of an application (*see Paragraph [0035], "The HAVi stack 426 includes a device manager. As the FAV finds new devices coupled to the HAVi network 400, the device manager creates a device control module for each new device. These device control modules (DCMs) 424 are instantiated for all the devices on the HAVi network 400. The DCMs 424 allow the HAVi network 400 to interface with each HAVi compliant device and IP device DCMs 422 allow the HAVi network 400 to interface with each IP device."*). Note that the device manager of the FAV creates a device control module (DCM) for each device. The DCMs are instantiated for all the devices coupled to the HAVi network. One of ordinary skill in the art would readily comprehend that the DCMs have to be installed first prior to being instantiated.

Second, with respect to the Applicant's assertion that Davies does not disclose "wherein the application server controls the plurality of controlled devices in response to the installed applications," the Examiner respectfully submits that Davies clearly discloses "wherein the application server controls the plurality of controlled devices in response to the installed applications" (*see Paragraph [0024], "The primary distinguishing feature of an FAV node is that it is able to take control responsibility for less sophisticated devices and does this by loading a control module, usually from the less sophisticated device, and executing it locally."*; Paragraph [0025], *"In the embodiment shown in FIG. 1, FAV node 110 acts as a controller for the HAVi network 100 and connected devices."*; Paragraph [0030], *"The IP DCM is a logical representation of the IP device 230 that provides an API used to send control commands to the IP device 230 by the server 212 on the controller 210."*). Note that the cited portions of Davies

all describe the FAV as a controller for the devices coupled to the HAVi network and the commands are, in fact, control commands sent by the DCMs to the devices.

Third, Examiner further submits that the process of installing an application in a HAVi network with a control device and a controlled device connected with each other is well-known to one of ordinary skill in the computing art and also conventional in the area of computer networking. Applicant has already admitted in the “Background of the Invention” section of the specification that the process of installing an application in a HAVi network with a control device and a controlled device connected with each other is well-known in the art (*see Figures 1 and 2; Paragraph [05]*). Furthermore, by way of an example and not of limitation, the various patent and non-patent literatures cited by the Examiner are all related to, one form or another, the concept of installing an application in a HAVi network with a control device and a controlled device connected with each other.

Therefore, for at least the reasons set forth above, the rejections made under 35 U.S.C. § 102(b) with respect to Claims 1 and 17 are proper and therefore, maintained.

In the Remarks, Applicant argues:

b) Claim 9 recites, inter alia, one of the plurality of controlled devices controls the application server and performs installation and management of applications for the plurality of controlled devices, wherein the one of the plurality of controlled devices controls the plurality of controlled devices in response to the installed applications.

Consequently, Applicant submits that even though Davies may disclose an FAV acting as a controller, Davies fails to disclose this FAV controls the plurality of controlled devices in

response to these installed applications. Notably, these portions of Davies relate to an FAV acting as a controller 210 and the creation of device control modules (DCMs) which allow the HAVi network 400 to interface with each IP device. However, nowhere do these portions, nor does any other portion of Davies, disclose: (1) one of the controlled devices performs the installation of an application; and (2) where the one of the controlled devices controls the plurality of controlled devices in response to the installed applications. Rather, the FAV merely uses these interfaces to communicate commands.

Examiner's response:

b) Examiner disagrees. Applicant's arguments are not persuasive for at least the following reasons:

First, with respect to the Applicant's assertion that Davies does not disclose one of the controlled devices performs the installation of an application, the Examiner respectfully submits that Davies clearly discloses one of the controlled devices performs the installation of an application (*see Paragraph [0028], "In FIG. 2, a block diagram of one embodiment of an IP device 230 integrated into a HAVi network 200 is shown. The HAVi network 200 includes an IP and HAVi compliant device, i.e., an FAV, acting as a controller 210. The controller 210 runs a server 212 and includes HAVi software and APIs 214."*; Paragraph [0029], *"In an alternative embodiment, an IP device may control the FAV or IAV device as well as other HAVi compliant devices coupled to a HAVi network."*; Paragraph [0035], *"The HAVi stack 426 includes a device manager. As the FAV finds new devices coupled to the HAVi network 400, the device manager creates a device control module for each new device. These device control modules*

(DCMs) 424 are instantiated for all the devices on the HAVi network 400. The DCMs 424 allow the HAVi network 400 to interface with each HAVi compliant device and IP device DCMs 422 allow the HAVi network 400 to interface with each IP device.”). Applicant has correctly noted that an FAV acts as a controller. Note that Davies also discloses that in an alternative embodiment, an IP device may control the FAV as well as other devices coupled to the HAVi network. Thus, one of ordinary skill in the art would readily comprehend that in order to control the FAV device and the other devices coupled to the HAVi network, the IP device must utilize a device manager. As clarified hereinabove, the device manager creates a device control module (DCM) for each device. The DCMs are instantiated for all the devices coupled to the HAVi network. One of ordinary skill in the art would readily comprehend that the DCMs have to be installed first prior to being instantiated.

Second, with respect to the Applicant’s assertion that Davies does not disclose “wherein the one of the plurality of controlled devices controls the plurality of controlled devices in response to the installed applications,” the Examiner respectfully submits that Davies clearly discloses “wherein the one of the plurality of controlled devices controls the plurality of controlled devices in response to the installed applications” (*see Paragraph [0029], “In an alternative embodiment, an IP device may control the FAV or IAV device as well as other HAVi compliant devices coupled to a HAVi network.”; Paragraph [0030], “The IP DCM is a logical representation of the IP device 230 that provides an API used to send control commands to the IP device 230 by the server 212 on the controller 210.”*). As clarified hereinabove, the IP device acts as a controller for the devices coupled to the HAVi network and the commands are, in fact, control commands sent by the DCMs to the devices.

Therefore, for at least the reasons set forth above, the rejections made under 35 U.S.C. § 102(b) with respect to Claims 9 and 24 are proper and therefore, maintained.

Conclusion

13. The prior art made of record and not relied upon is considered pertinent to Applicant's disclosure.

14. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

15. Any inquiry concerning this communication or earlier communications from the Examiner should be directed to Qing Chen whose telephone number is 571-270-1071. The Examiner can normally be reached on Monday through Thursday from 7:30 AM to 4:00 PM. The Examiner can also be reached on alternate Fridays.

If attempts to reach the Examiner by telephone are unsuccessful, the Examiner's supervisor, Wei Zhen, can be reached on 571-272-3708. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the TC 2100 Group receptionist whose telephone number is 571-272-2100.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/Q. C./

Examiner, Art Unit 2191

/Wei Y Zhen/

Supervisory Patent Examiner, Art Unit 2191